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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

GEYER, SCOTT B

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/938,875

Applicant(s)

CAO, DENSEN

Examiner

Scott B. Geyer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other:

### **DETAILED ACTION**

1. The election requirement of the previous office action, paper no. 4, is withdrawn. A new requirement is hereby made.

#### ***Election/Restrictions***

2. This application contains claims directed to the following patentably distinct species of the claimed invention. Applicant is required to choose ONE from each of the following 'lettered' groups:

##### **A. Bulb shape:**

1. Spherical
2. Cylindrical
3. Elliptical
4. Domed
5. Square
6. N-side, where N is an integer
7. Flat
8. Arcuate
9. Rounded

##### **B. Bulb enclosure:**

1. Transparent
2. Translucent

##### **C. Bulb material:**

1. Glass

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2. Plastic
4. Polycarbonate
5. Other light transparent material

**D. Exterior surface - - finish:**

1. Smooth and glossy
2. Matte
3. Other finish

**E. Exterior surface - -finish applied by:**

1. Coated
2. Painted

**F. Interior surface:**

1. Coated with luminous powder coating
2. not coated

if 'F1" is chosen, then:

**FF'. luminous powder coating on:**

1. interior surface of bulb
2. coated on semiconductor device(s)

**FF". luminous powder coating:**

1. YAG:Ce
2. Phosphor powder

**G. Enclosure volume:**

1. Vacuum

2. Ordinary air
3. Inert gas such as Argon or Nitrogen
4. Other gas

H. Light converting coating applied by:

1. Brush coating
2. Flow coating
3. Evaporative coating

I. Semiconductor device:

1. LED chip
2. LED arrays
3. VCSEL chip
4. VCSEL arrays
5. Photon recycling device
6. Other semiconductor device

J. Device on substrate:

1. Insulating substrate
2. Conducting substrate

K. Substrate material:

1. Sapphire
2. Gallium Arsenide (GaAs)
3. Silicon Carbide (SiC)
4. Gallium Phosphorous (GaP)

5. Gallium Nitride (GaN)
6. Silicon (Si)
7. Indium Phosphorous (InP)
8. Gallium Antimony (GaSb)
9. Indium Arsenide (InAs)

**L. Heat sink material:**

1. Copper
2. Aluminum
3. Silicon Carbide
4. Boron Nitride
5. Natural diamond
6. Monocrystalline diamond
7. Polycrystalline diamond
8. Polycrystalline diamond compacts
9. CVD diamond
10. PVD diamond

**M. Heat sink utilization:**

1. Each semiconductor device has its own heat sink
2. Two or more semiconductor devices on the same heat sink
3. Base is the heat sink

**N. Chips mounted to heat sink using:**

1. Heat conductive adhesive - - specifically silver based epoxy

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2. Heat conductive adhesive - - other epoxies
3. Heat conductive adhesive - - other adhesives
4. Brazing
5. Mechanical fixation
6. Silver based epoxy - - light reflective adhesive
7. Aluminum based epoxy - - light reflective adhesive

O. TE (Thermoelectric) material in heat sink:

1. Utilized
2. Not utilized

P. heat dissipating fan:

1. Utilized
2. Not utilized

Q. Transparent filler material:

1. Not utilized
2. Epoxy
3. Plastic

R. Power module, AC/DC converter:

1. Utilized
2. Not utilized

S. Contact layer:

1. Located on second cladding layer
2. Not utilized

/

An example of a correctly identified election would be as follows:

A method of making a semiconductor light source wherein the bulb is domed, the bulb enclosure is transparent, the bulb material is glass, the exterior surface of bulb is matte and is applied by painting, the interior surface is coated with a luminous powder coating which is located on the interior surface of the bulb and is composed of YAG:Ce, the enclosed volume is under vacuum, the light converting coating is applied by evaporative coating technique, the light emitting structure is a VCSEL chip, the substrate is conducting, the substrate is silicon, the heat sink is silicon carbide, each device has its own heat sink, the chips are attached to the heat sinks by brazing, TE material is not utilized, a heat dissipating fan is not utilized, transparent filler material is epoxy, a power module AC/DC converter is used and a contact layer is not used on the second cladding layer. This example of an election would be classified as follows: A4, B1, C1, D2, E2, F1, FF'1, FF"1, G1, H3, I3, J2, K6, L3, M1, N4, O2, P2, Q2, R1, S2.

/

3. Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, none of the claims are generic.

4. Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument



that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

5. Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

6. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

7. A telephone call was not made to the applicant due to the complexity of the present restriction requirement.

8. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott B. Geyer whose telephone number is (703)

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306-5866. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. The examiner may also be reached via e-mail: [scott.geyer@uspto.gov](mailto:scott.geyer@uspto.gov)

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (703) 308-1233. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SBG

S.B.G.  
December 15, 2002



**KAMAND CUNEO  
SUPERVISORY PATENT EXAMINER  
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